Michigan Department of Natural Resources Comments to the Contaminated Sediment Technical Advisory Group (CSTAG)

- Sharon Hanshue, MDNR-Fisheries
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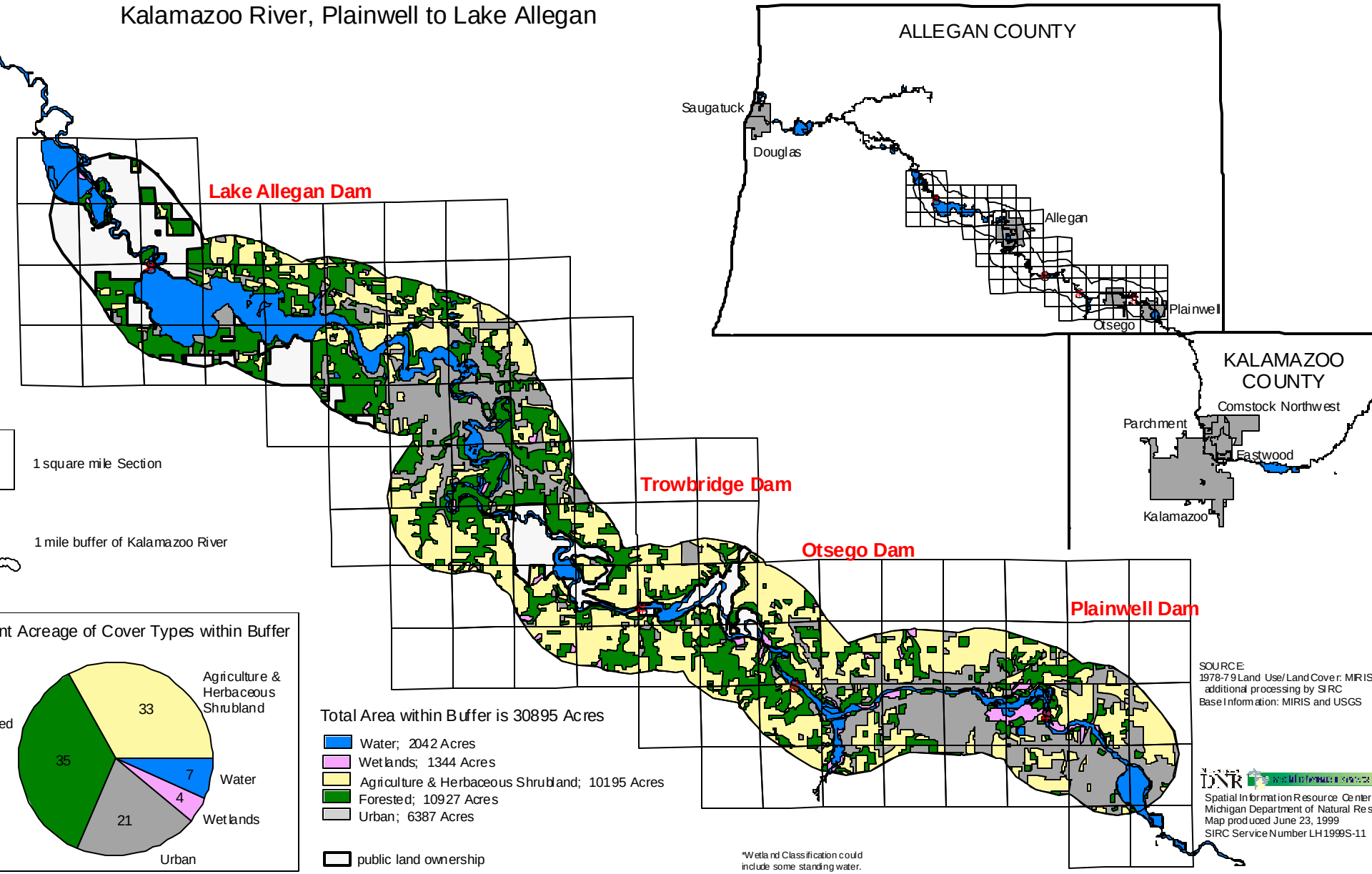
- John Lerg, MDNR-Wildlife

Remediation Objectives:MDNR

- Restore, protect and if possible enhance populations of species adversely affected by the PCB's, particularly bald eagles, river otters and mink.
- Relax (remove) fish consumption restrictions.
- Allow for public trust resource management of the river environment, fisheries and wildlife.
- Allow for safe, high quality recreational use and access to the Kalamazoo River.
- Substantially minimize discharge of PCB's to Lake Michigan from the Kalamazoo.

Kalamazoo River, Plainwell to Lake Allegan



Fisheries Management Objectives

- Currently have naturally reproducing populations of smallmouth bass, northern pike, walleye, and channel catfish. Provide excellent fishery outside the highly impacted mainstem of the river.
- Fisheries productivity and angler use will likely increase substantially if river corridor management plans were permitted to move forward, such as selective dam removal.
- Dams adversely effect aquatic resources and unneeded dams should be removed.

Adverse Effects of Dams

- Restrict access (fish, people)
- Loss of biological diversity and productivity
- Alter natural flow
- Loss of high gradient reach

Adverse Effects of Dams

Impoundment Problems

- poor water quality
- sediment accumulation
- elevated nutrients
- nuisance vegetation
- bank erosion
- restrict flow of organic material

About the Kalamazoo River CERCLA site dams...

- Calkins Bridge dam (Lake Allegan) FERC licensed unlikely to be removed, lakefront development.
- Allegan City dam, City is owner, recently repaired, supports existing waterfront development.
- Trowbridge, Otsego and Plainwell dams. DNR owned, deteriorated condition, interim repairs good for no more than 5 years (2006).
- Otsego City dam (Menasha/City), very poor, City supports removal or transfer of ownership.

Is it feasible to use dams in the remedy

- Reconstruct some/all dams, plus maintenance, mitigation, passage.
- Restoring dams cost up to 3x more than removal (WI study).

Implications of retaining dams

- Dam maintenance costs, liability transferred to long-term Trust.
- Fish ladder, recreational use passage required.
- Public trust value in the river segments lost to waste storage must be compensated.
- State, Federal land purchase reimbursed
- Impoundment wastes not removed vulnerable to flood and other disturbance.

Implications of retaining dams

- Bank treatment may induce other long-term hydrologic and river channel changes (groundwater discharge, bank erosion).
- KRSG previous proposal represents significant loss of riparian habitat and habitat potential.
- Adverse effects on fisheries and wildlife habitat are not quantified but potentially significant.
- State lands subject to specific public uses not compatible with the remedy proposal.

Is dam removal feasible?

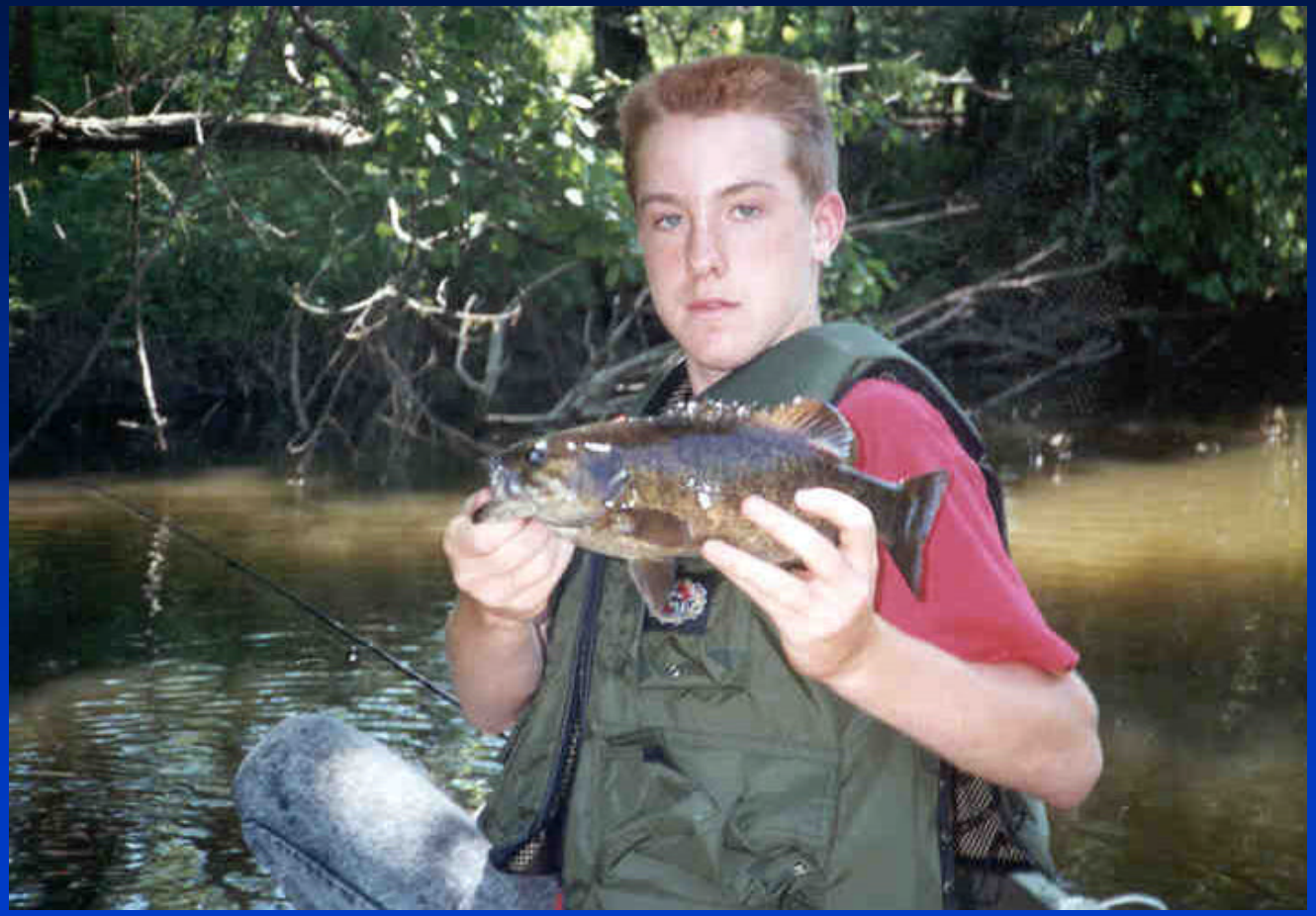
- DNR and DEQ have conducted or overseen several recent dam removals:
  - Big Rapids City dam
  - Stronach dam
- DEQ contracted with USGS for $1.2 M in river morphology and sediment transport studies (2000-2004); revised estimates of sediment volume; assess effects of removal.

Feasibility of dam removal

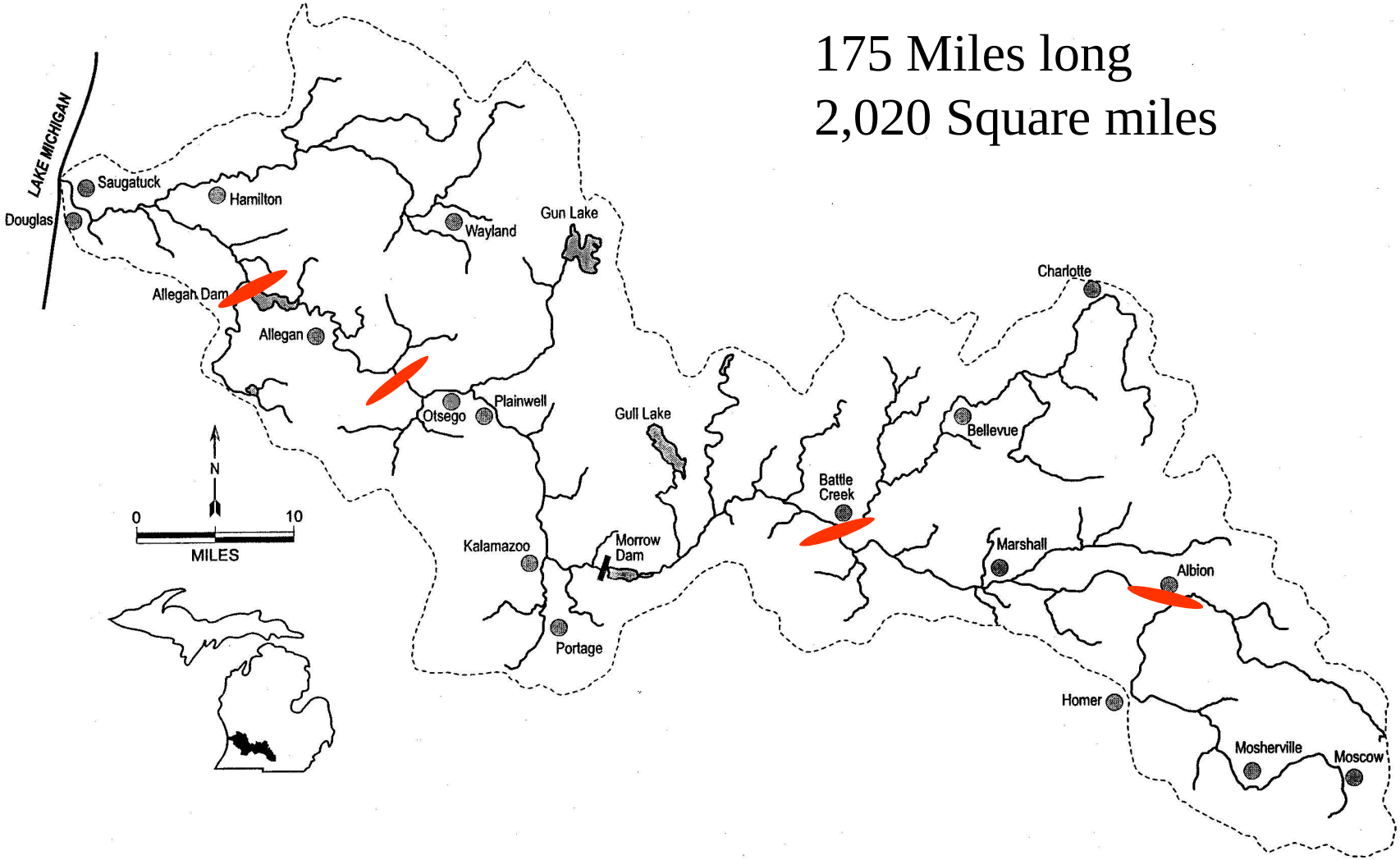
- Dam owners unwilling to fund maintenance may be willing to fund removal as part of river restoration initiative.
- Narrow time-frame to decide whether to invest in the river or invest in new dams.
- Owners may also incur some of the sediment management expense (absent PCB).
- Option: Dam removal could be considered part of NRDA compensation.

Kalamazoo River Fishery

(Data from: Draft - Kalamazoo River Assessment and Management Plan)



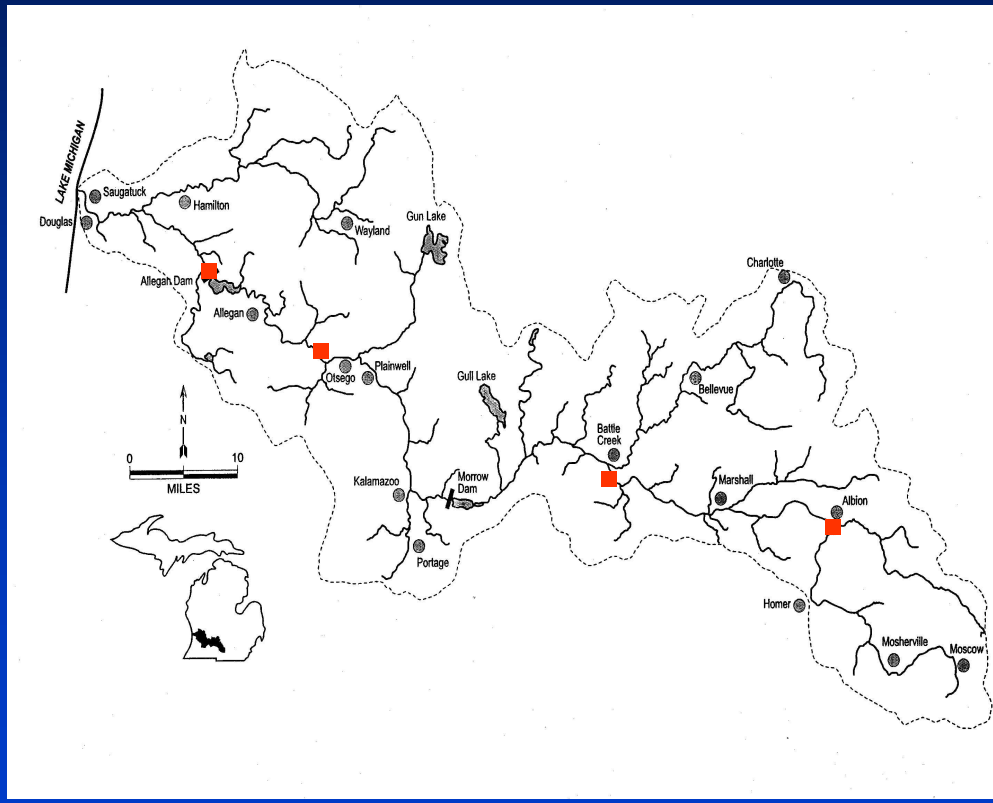
Kalamazoo River Watershed



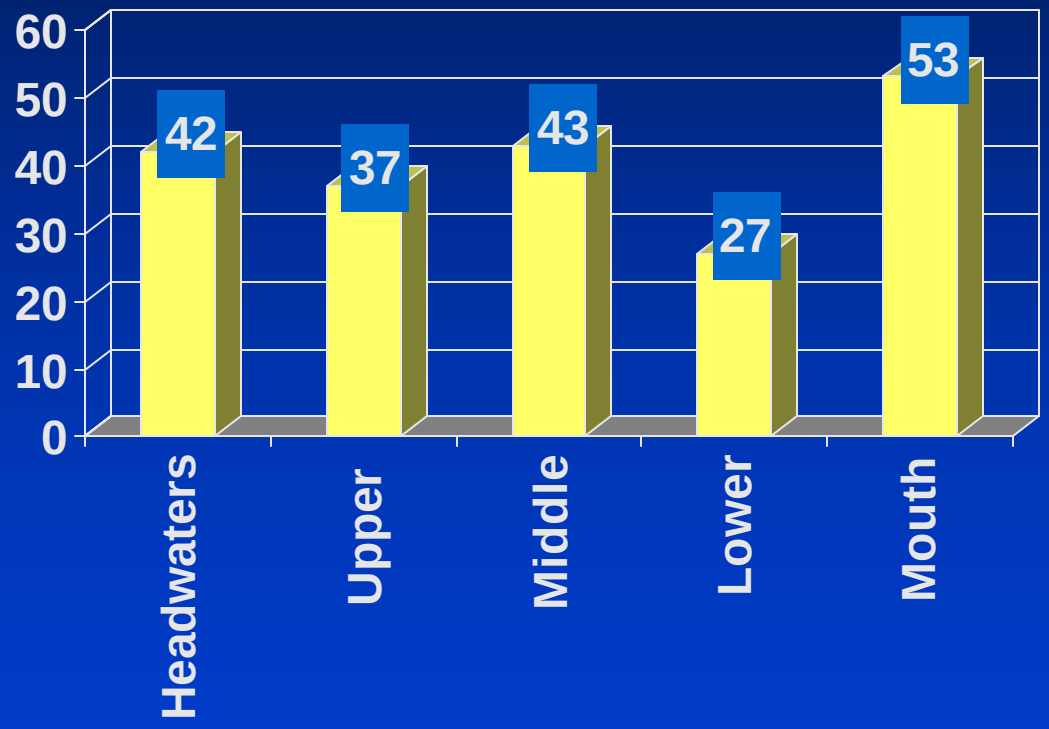
175 Miles long
2,020 Square miles

Mainstem Segments

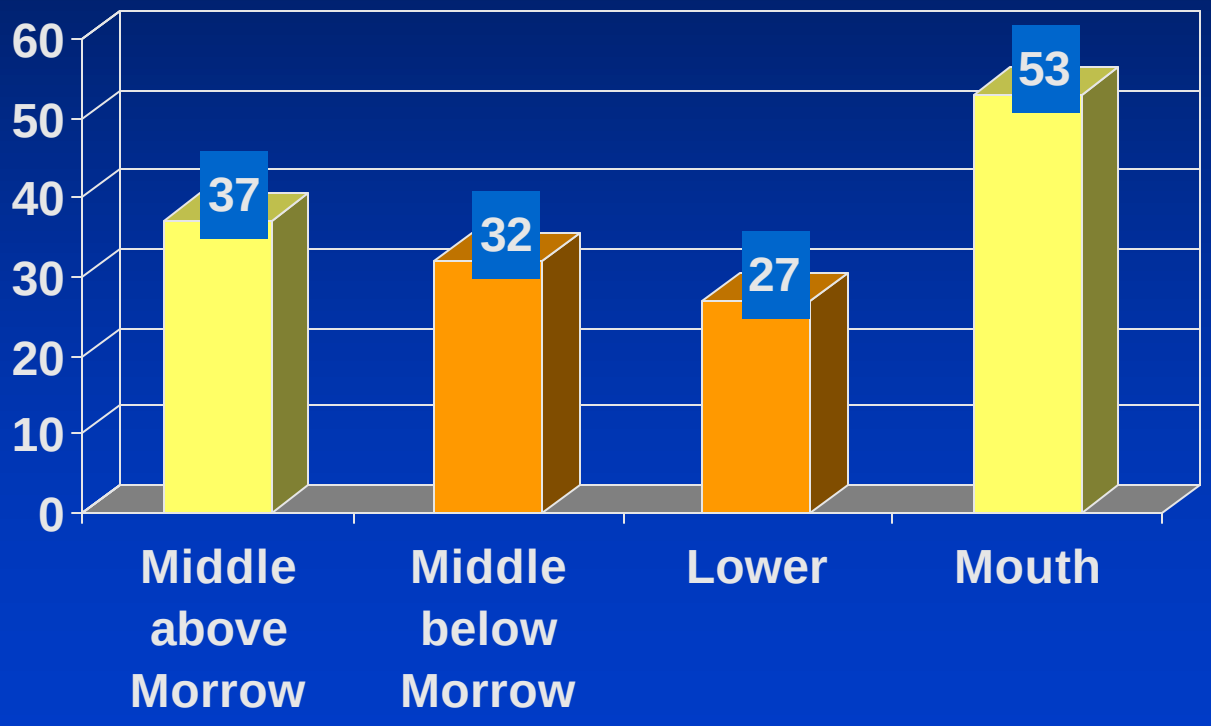
- Headwaters: small,unconfined, cold, and stable.
- Upper: medium, unconfined, cool/warm, and stable.
- Middle: large, sporadically confined, warm/cool, and stable.
- Lower: large, confined, cool, and stable.
- Mouth: large, GL connection, unconfined, and stable.



Diversity of Fish
in the Kalamazoo River Mainstem



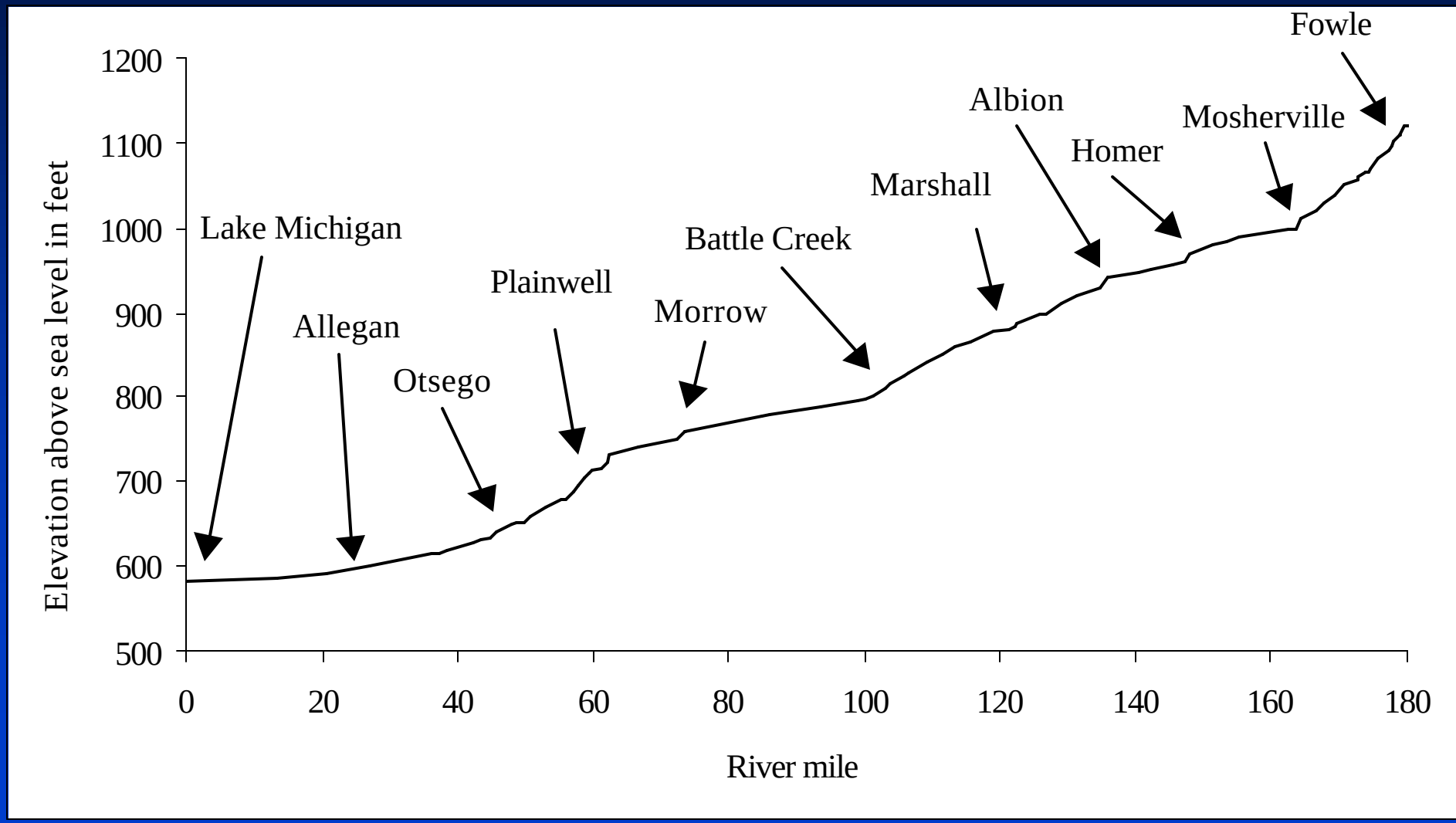
Diversity of Fish
within the Superfund Area



Fish Consumption Advisory

- General Population: No consumption of carp, suckers, catfish, largemouth bass, and smallmouth bass.
- Women & Children: No consumption of all species.
- General Population: One meal/wk for all other species.

Kalamazoo River Gradient



Armoring Contaminants in Place or Habitat Destruction

Otsego Impoundment

River Corridor Habitats

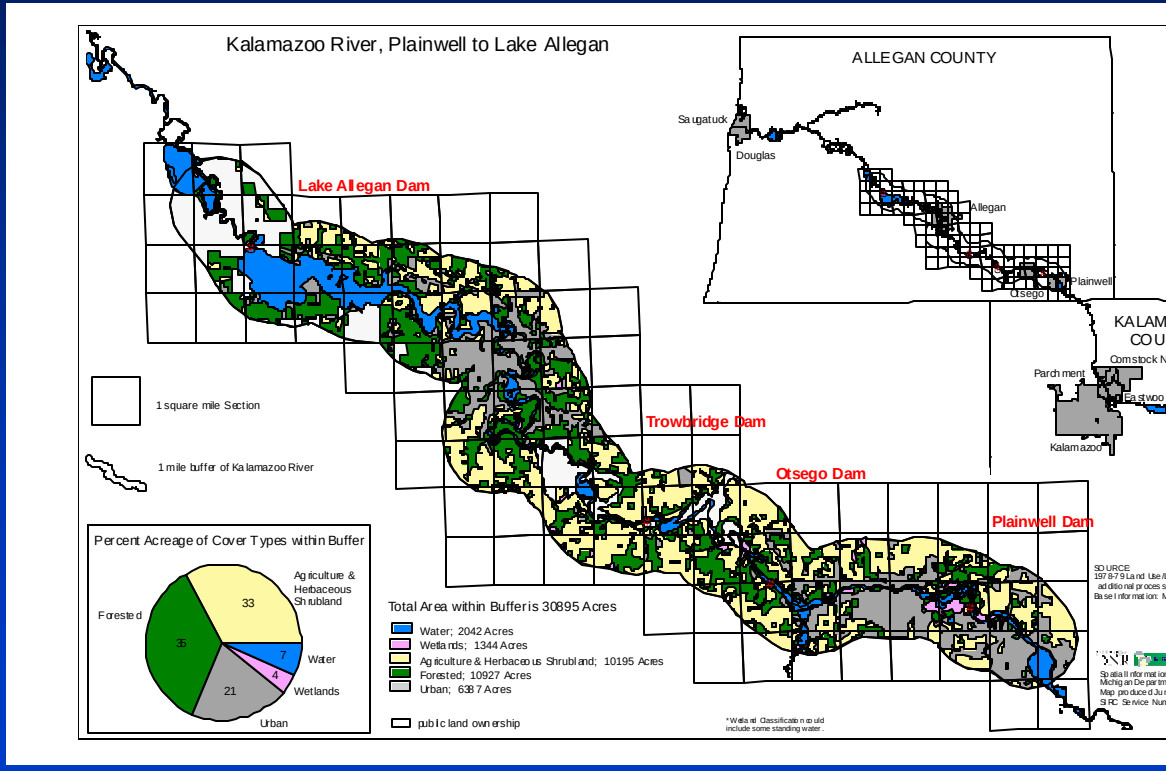
- Top of bluff
- Bluff slope face
- Base of bluff
- Riverine floodplain
  - Floodplain forest
  - Shrub/scrub
  - Shrub/carr
  - Open river bank

River Corridor Habitats

- River
  - Shallow water environments
  - Deep water environments
- Habitat transitions

The River in Length

- Habitat unit
- Corridor connecting habitat units (Ft. Custer, Allegan SGA, & D.R.M.)
- Migration pathway & stopover
- Wintering sites (Birds/mammals)



Wildlife Concerns and Opportunities

- An armored waterway
- Sediment disposal within the river corridor
- Access to the river